

CANADIAN GEOGRAPHICAL JOURNAL

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Colour photograph by Adelaide Leitch

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Nain, nestled at the base of Nain Hill, with First Brook flowing down on the left. The harbour is protected from the Atlantic Ocean, on the right, by rocky headlands and islands.

Village With a Mission Nain, Labrador

by ADELAIDE LEITCH

Photographs by the author except where otherwise credited

NAIN sits at the base of a windy Labrador hill—white houses with red roofs on one side, the uniformly gray shacks of the Eskimos on the other, and the slanted, green-topped steeple of the Moravian Mission church set squarely in the middle.

Toward the open ocean, the land levels out like the palm of a hand to hold bleached, stony beaches and mushroom flats. On the bank of the First Brook, the Union Jack is a bright blob of colour when the Newfoundland Ranger is at his station, and, rather incongruously in a land of rocks, "the park" with its thick, luxurious stand of evergreens, makes a green semi-circle around the western outskirts of Nain.

Out from the high dock, ingeniously anchored a little way out by means of rope pulleys, cluster a number of small boats—the dories that bring in the cod or trout, or take passengers and freight from the larger boats. For no ship larger than a skiff ties up at a dock in Labrador, because of the shoals, tides and sudden storms.

In latitude 56° N. and the last sizeable place but one on the way north to Ungava Bay, the village of Nain with its 320 people—280 of them Eskimo—shares the isolation and loneliness of all Labrador. For the white minority, it has also the peculiar, almost hypnotic appeal they speak of in St. John's as the "Lure of The Labrador". Few who live

VILLAGE WITH A MISSION—NAIN, LABRADOR

there would willingly choose another habitation.

Nain lies well north of Hamilton Inlet which, roughly, divides Indian from Eskimo territory; but Nain has its full quota of Eskimos only in winter, when the fishing is over and they return from their nets and lines at the outer islands. In summer, the husky dogs, turned loose to forage for themselves, come sniffing around empty homes. Here and there, where a family remains, there will be rows of bright orange "pipes" (fillets of trout) drying on racks on the roofs.

The people, the store, the school and even the Moravian Mission itself, that has held the land by British grant for nearly two centuries, must wait upon the fish. In a reconverted R.C.A.F. cottage raised by the fishing population at Queen's Lakes, services are held two or three times each summer right at the fishing grounds so that the fishing need not be neglected. Supplies from the store are sent out by special boat. School cannot open sometimes until late November. No one would come if it did!

On Sundays those fishing nearby make for home and the services in the white church of



Canadian Geographical Journal map

the mission. In summer, they wear the unbecoming clothes of the white people for such dress-up occasions. In winter, wearing parkas and furs, they seem a different people. Alert and bright-eyed, they pad across the snow that is no more glistening a white than the soles of their own best sealskin boots chewed industriously by the women to make them so. Although they have no native music of their own, their voices are high and sweet as they sing the hymns in Eskimo.

In the evening, they come quietly up the well-trodden path and into the parlour of the mission to group themselves expectantly around the dutch oven, perhaps to look at lantern slides and eat cookies before bowing their heads and murmuring in unison,

The woodlands that form a park at the western outskirts of Nain.





Centre of much of the town's activity is the dock at Nain. At left is the fish packing plant, at right the store of the Northern Labrador Trading Operations which, under government auspices, set up a rehabilitation program for the Eskimos.

"Nalegak Gude, kilangme; attit nertortaule..." (our Father who art in Heaven, hallowed be Thy Name . . .).

The Christ Ingle service at Christmas is by candlelight, each chapel servant carrying a candle in a turnip or a bun. At night each child is given a present from the Christmas tree, just as in the cities of the south except that there is no bewhiskered Santa Claus. Watchnight is the one occasion in the year

when the brass band is allowed inside the church, while the minister stands at the door afterwards shaking hands and receiving the English greeting—in English—"Happy New Year."

Nain's *Ajokertuijok*—the teacher, as the Eskimos call him or, more usually, *Angajokak*, the boss—is an Englishman, Rev. F. A. W. Peacock, now superintendent of Moravian Missions for Labrador. He came to the coast from Bristol in 1935—with not a word of Eskimo in his vocabulary and not an Eskimo tooth extraction to his credit. In short order he had to learn both, as well as to travel by dog team and to enjoy a meal of seal meat. His work now takes him to the four Moravian stations of Makkovik, Hope-dale, Nain and Hebron and, on many of his trips before the birth of his daughter, his slim, blue-eyed English wife, Doris, went along with him.

The ancient, voodoo-like beliefs of the Eskimo have petered out in Labrador, and if thoughts of the witch doctor or *Angakok* remain, they are in the shadowy recesses of the minds of the very old. The Eskimo, normally an open and friendly person, is peculiarly reluctant to talk of his ancient religion and legends.

Some of the legends are bound up with the land formations of Labrador itself, such as the "raised beaches" found here and there along the shore. According to the story, the



The Reverend F. A. W. Peacock, in Eskimo tunic, preaches to his congregation in its own tongue.



Small boats come up to the dock, but larger ones anchor in the harbour, sending in their dories with supplies and passengers.

Angakok once showed his powers to the people by causing huge tracts of land to rise a foot or so in the air and hover there. In time, the earth filled in underneath and grew up to meet these floating tables until they formed the raised beaches of today.

The Eskimo has not improved his lot by contact with the white people, and his aping of the white man's ways has not been beneficial. In a good year, he deserts his diet of seal meat, which is the staff of life to the Eskimo, and eats expensively of the white

man's flour and beans, with resultant skin diseases from the vitamin deficiency.

The Nain Eskimo is a friendly, likeable person, and his greeting of "*Aksunai!*" is accompanied by a broad grin on his round face. Equipped with an innocent but insatiable curiosity, he is not above applying a bright eye to a keyhole when he goes visiting.

Improvident to the extreme, he seems to operate on the theory that if he eats, drinks and is merry while the food is abundant,

Trout — the "pipes" of Labrador — are hung on racks on the rooftops to dry. They are stored for winter use.





Morning fog covers the distant hills as fishermen inspect the trout net spread in a cove near Nain. Even in July there are patches of snow on the hills, though temperatures may soar to the 80s.

then somehow or other tomorrow will take care of itself.

The Rev. Mr. Peacock had that theory demonstrated rather forcibly to him one cold winter when, on his way to Hebron by dog team, he fell in with a family of Eskimos bound for Nutak in the same direction. Snow began to fall and the party soon lost its bearings. The Eskimos, without a care in the world, ate up their own supplies as if nothing had happened and began eyeing those of the minister and his dog driver until Mr. Peacock instituted a system of rationing. That idea met with no favour at all from the Eskimos who, for the next thirty-six hours, complained angrily at the

smallness of the *Kablunak's* (white man's) stomach. When they reached Udluk, six miles from Nutak with their supplies all but gone, they turned accusingly on their companion. See, they pointed out in some exasperation, it was not necessary to ration the food as they had arrived all right after all!

In 1771 Nain was established as a Moravian Mission station on a tract of land which had been granted by the British government two years before for mission work and for trade. As might have been expected, the combination of the two was a temptation to "rice Christianity"—a baptism in exchange for gifts. The Moravians

An Eskimo of Nain hauls in his trout net. Cod is the staple fish of Labrador, but trout and salmon are also taken, as well as the small caplin.



A dory load of fishermen with their nets pulls alongside the Winnifred Lee bound for Nain and Hebron. This ship serves the schooners north of Hopedale and brings mail and supplies to the coastal settlements.



soon found themselves fighting the evils of tobacco and rum as well as paganism. Tremendous unpaid debts were run up by the Eskimos, debts that were not wiped

out until 1926 when the Hudson's Bay Company took over the trading activities and cancelled them. But there was insufficient profit for the Hudson's Bay men and

Eskimo Fred Merkurarsuk cleans his nets in the mission yard. His name, translated literally, means "nice little needle".





Dr. Anthony Paddon of the Grenfell Mission visits Nain twice yearly. Behind him, in Nain harbour, is his hospital ship. The winter trip is made by dog team.

in 1942 the store at Nain, as well as some others on the coast, was bought by the Northern Labrador Trading Operations under the auspices of the Department of Natural Resources.

The N.L.T.O. operated for an entirely different purpose—the rehabilitation of the

Eskimo. It provided him with new boats and nets, taught him how to make a profit from his fishing, and then bought his trout and cod, salted and barrelled, for resale in St. John's and farther afield. In addition, it brought in supplies and sold them as cheaply as possible. For outlying fishing

From Nain Hill the rocks and inlets of Labrador stretch into the distance. These waters are treacherous for navigation, but good fishing grounds.





The Miss Nain, store boat of the Northern Labrador Trading Operations, brings supplies and mail to the tiny fishing hamlet of three families at Black Island.

settlements it provided a store boat, the *Miss Nain* to run on a weekly schedule and keep the men on the fishing grounds. Prices from the boat are the same as in the store, and odds and ends like letters, slips from plants, and messages to relatives are carried free of charge by "Skipper Jim" Carter, who is also fishery foreman for the Nain area.

But if the N.L.T.O. has improved the Eskimo's lot, it has not yet conquered his habit of spending today and going in want tomorrow. Nor have the combined operations of government and mission yet convinced him that the kitchen floor is not the right place to skin a deer or gut a seal, and the aroma of departed animals lingers long in the unpainted little Eskimo huts of the village. The Eskimo argues, in return, that he cannot have a nice home when he must have several at once for his various occupations. Some, like Martin Martin, the chief Eskimo of Nain, have as many as four homes—one at Nain, one at the lakes for fishing, a third at the sealing grounds and a hut at the end of one of the bays for use at the trapping lines.

Besides, when a house becomes too dirty to be habitable, he simply moves out and builds a new one.

In spite of a pronounced indifference towards lessons in cleanliness and hygiene—as well as spelling and multiplication—the Eskimo is extremely quick in learning something which, in his opinion, will be to his advantage. Under this heading comes the operation of a boat or the mechanics of a



The rocky landing at Black Island.

boat's engine, at which the Eskimo is normally quicker than a white person.

The Nain school, which is mission operated and includes two boarding schools, tries to encourage the native arts and crafts, although not on the commercial scale of the Grenfell Missions farther south. Boys are given art lessons and encouraged to depict native life; girls are taught to make clothing, vamps (inside slippers) and embroidery. Older ones take over the cooking for the boarding schools, and are taught household arts such as mending, sweeping and keeping house. Children attend school between the ages of six and fourteen, and government grants are provided to help send more talented youngsters to school at Northwest River until they are eighteen, on the understanding that they will return afterwards to teach.

Until 1949, teachers for the four Moravian stations came from England. Then, two Americans, Mr. and Mrs. W. A. Ogletree, came to the Labrador coast, to teach in Nain. Stationed farther south, in Battle Harbour, with the American Army during the war, Mr. Ogletree also shares in a new project for the Moravian Station at Nain. A radio station is being set up that will carry education, religion and entertainment to the men on the fishing grounds, by means of a number of small receiver sets that will be installed in their boats and keep them in touch with Nain.

Medical and dental attention is another mission job in Labrador where trained

doctors are few and far between and hospitals may be hundreds of miles away. The dispensary in the mission, stocked with the most up-to-date medicines and drugs, serves as hospital; a medical text book is often the only guide when an Eskimo falls sick, and the Rev. Mr. Peacock, with a six weeks' medical course as part of his missionary training, is often called upon to step into the role of full-fledged doctor.

Twice a year, once by boat, once by dog team, Dr. Tony Paddon, Grenfell Mission doctor from Northwest River, tours the coast of Labrador and, in cases of emergency, a radio S.O.S. will bring an R.C.A.F. plane in on a mercy flight from Goose Airport—if there is a plane available. The Department of Public Health and Welfare authorizes such flights and, on occasion, the United States Air Force has also sent planes up the isolated coast.

Symbol of law and order in the north is the single, khaki-coated Newfoundland Ranger—Labrador counterpart of the Mountie in the Northwest—who may be absorbed in the R.C.M.P. now that Newfoundland is part of Canada. Ten detachments police all Labrador (110,000 square miles) with an aggregate staff of eleven men. Most of the crime in Labrador, according to the Chief Ranger, Major E. L. Martin in St. John's, is of white not native origin. The cases that appear before Magistrate Noseworthy on his floating courthouse, the *St. Barbe*, are largely white or white instigated.



Nain's three schools are trim and modern. Two of them are boarding schools. School terms must be timed so that they do not interfere with fishing operations.



Snow is thick and winters cold in Labrador, but many who live there say they prefer the cold weather.

Seigfried Hettasch

When a boat comes steaming up the blue water of Nain harbour, it is a big day, whether it is the *St. Barbe*, or the *Maraval* with its small red cross, bringing Dr. Paddon; the *Winifred Lee*, vital supply and mail boat of the north, or a stranger in port such as the *Blue Dolphin*, government survey boat on the Labrador coast in 1949. Boats mean visitors, mail, supplies, and, most important, news.

Partly because of the hunger for news, partly because of the necessity of co-operation in a country where the few people are widely scattered, hospitality in Labrador is as innate as the evening mug-up of tea and biscuits before bedtime. The casual visitor is a welcome friend, and men and women hundreds of miles apart are better aware of each other's comings and goings than are next door neighbours in a southern city.

Winter garb is more colourful than that of summer in a place such as Nain. This Eskimo girl wears the long-tailed tunic called akulik.

Seigfried Hettasch





The working dogs of the north. Labrador huskies are noted for their staying power and endurance in pulling sleds over the snow. In summer they do no work and many are turned loose to forage for themselves.

Freshly-killed meat is shared with generosity, accepted with gratitude, with the unspoken understanding that you will share your own bonanza of game later on.

"No matter how full your larder is—you never refuse an offer of meat. If you do, you'll be sorry later on." That is what they say in the north. Towards the end of summer the women work late into the night—preserving the wild fruit that all seems to ripen at once, picking the vegetables from the garden, smoking the meat and fish.

Mercury in the thermometers dips to 40°F. below zero in winter and even in summer the carefully tended garden by the mission house may be flattened by a sudden, treacherous storm sweeping unexpectedly over the hills. To the Eskimos, it matters little, for few of them can be induced to cultivate gardens, although they are eager enough to accept the great armfuls of rhubarb, theirs for the asking, from the mission.

Earth was carried in baskets to make the gardens at Nain. Amazingly productive, it yields carrots, cabbages, beets, and even peas.

Winter brings a white, snowbound isolation for Nain as for most of Labrador with the exception of Goose Airport farther south. When the government-owned S.S. *Kyle* makes her last trip to Hopedale, and Captain Windsor's sturdy boat of the north, the *Winifred Lee*, turns south from Hebron for the last time, the voice of the radio is the only voice from the outside in Labrador parlours.

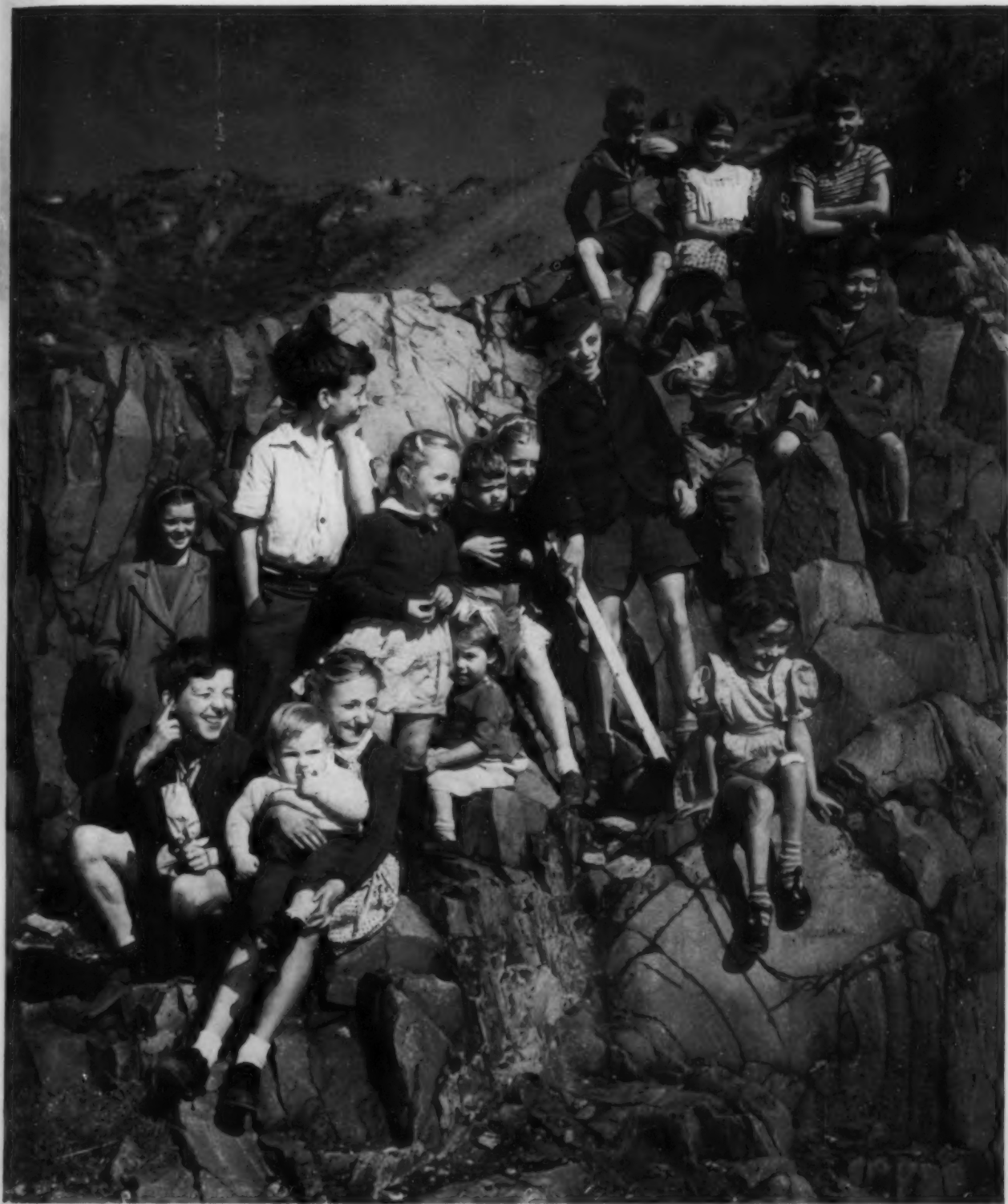
Dog teams are greeted with the same enthusiasm that was given the boats in summer. The ill-fed, scrawny, kicked and cursed huskies turn into heavy-coated working dogs, with regular meals to make them useful again to their owners. As many as four hundred of them may be in Nain in the winter, and there is no sound more blood-chilling than this "Labrador Band" howling in unison—and in many-pitched harmony.

The Eskimos undergo as striking a change as their dogs, when they put aside the ill-becoming white men's clothes and wear clothing of seal and deer skin, their white-bottomed boots, and their *sillapaks* (outer jackets with fur outside).

In spring, the first touches of green appear on the rocks, and the first flowers in the woods long before the ice bridge has gone from the Second Brook. Bakeapple blossoms unfold, later to produce red berries that turn into the luscious, golden yellow of the ripe berry. The fireweed sprouts and life is renewed in the dozens of tiny Labrador flowers that dare grow where temperatures may jump 20 to 30 degrees in an afternoon.

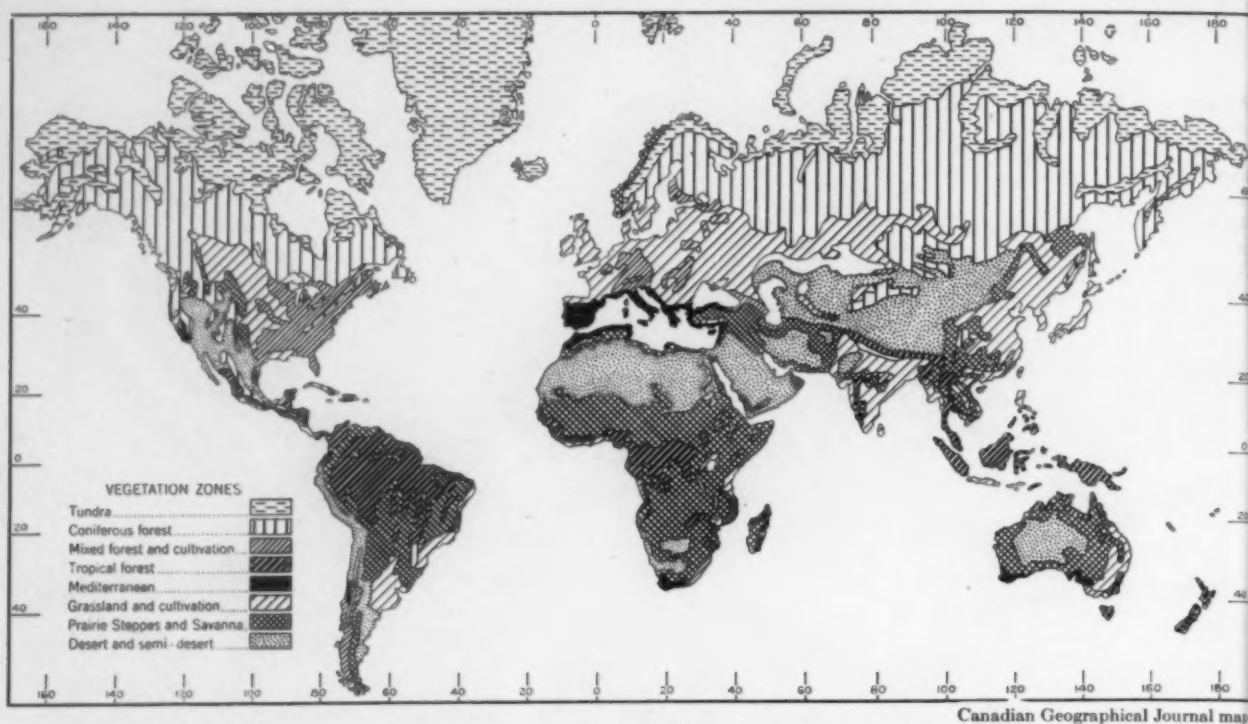
The Eskimos, their round faces split ear to ear with grins, begin to talk about the first run of small rock cod—the *ogarsuk*—nice little fish. Later on, when the regular cod are running, they speak contemptuously of the rock cod as *uitatok*—the one with wide open eyes. They turn loose their dogs again, abandon their *komatiks* or sleds.

One day, the first boat comes into Nain harbour. And so another season has begun.



N.F.B.

Newfoundland children. Theirs is a heritage of hardihood and tenacity, a sea-faring tradition, and a pride in their birthright. The future of several of them is likely to be connected with the sea. Many Newfoundland fishermen take their schooners to coves along the Labrador coast of their province for the summer, returning at the end of the season with holds full of salted cod.



The natural vegetation regions of the world (simplified). The pictures illustrating this article show some typical aspects of the natural regions.

The Geographic Basis of Foreign Trade

by J. LEWIS ROBINSON

IT WILL BE DIFFICULT for many readers to see how geography could be important in the basis of foreign trade. This condition results from our differing concepts of the content and scope of geography. Many business men left geography behind when they left grade school. The lists of places and products memorized were soon to be forgotten. Modern geography has changed from that of a generation ago. It still emphasizes the study of place, but it is the facts about the significance of that place, and the relationships of that place to others in the area that are important. The places become the framework upon which geographers weave the pattern which results from the relationships between physical environment and man's occupations.

Geography still deals also with products. Rather than a memorization of lists of pro-

ducts of various countries, however, geography teaches the distribution of known and potential resources and the types of physical environment which produce those resources. If the descriptive facts are known it therefore follows that a densely forested area has forest resources, and that a grassland or desert area does not. These facts seem obvious, but the surprising truth is that few people actually know exactly where the world's forests, grasslands, deserts, mountains, alluvial soils, or mineral resources are located. In particular, they do not know the relationships of these places to other places. Distance becomes vague once we are outside of our own neighbourhood. Yet these natural resources are the bases of the products which appear in our foreign trade statistics.

One definition of modern geography is "the study of man in his natural environ-

Northern tundra — region between the coniferous forests and the barren Arctic. Vegetation consists of low bushes, shrubs, grasses and moss. Northwest Territories, Canada.

J. L. Robinson photograph



ment". It is not, for example, a study of man in his social environment—that is sociology or anthropology. It is not a study of environment only—that is physical geography, a study of bedrock, topography, drainage, climate, soils and vegetation. Geography is a study of the relationships between the two main factors—man and his natural (or physical) environment. It is the way in which the natural environment influences man's movements and activities; it is also the way in which man adjusts himself to, and utilizes, that natural environment.

This study of the relationships between man and his environment forms the basis of geography, and can be applied in several directions. If the facts of geography are combined with those of economics and politics, it becomes economic geography. Economic geography has been called "a study of back-

ground physical and economic influences upon world production and movement of products". It is still a study of lists of products, but it explains *why* these products exist, and *why* they move. If the geographic principles behind this movement are known and understood, the lists of products need not be memorized, they are simply known.

There are several phases to economic geography. If we combine the study of natural environment with that of location of natural resources (or raw materials) and with commerce (with regard to markets), we are practising industrial geography. This might be applied to plant location, for example. If we point our information about environment and resources towards the influences of climate, soil and agriculture, we are in the field of land utilization—a study of the proper use of our natural environment. If

Coniferous forest. Trees here are principally black spruce, with scattered white spruce. There are some poplars and white birch near the river. Lake Opemiska, Quebec.

R.C.A.F. photograph





Mixed forest and cultivation. Wales.

C.O.I. photograph

we apply our knowledge of world regional environment and distribution of resources to the movement of products—realizing the powerful influence of politics in terms of tariff barriers, and economics in terms of monetary exchange—we are understanding one of the bases of foreign trade.

The significance of location is one of the fundamental facts in foreign trade. Products move from place to place. What is the char-

acter of that place and its surroundings, which causes the product to be surplus and to move? What is the character of the importing place which lacks the product and therefore receives it? We want to know, for example, about the soil characteristics, frost-free growing period, and the amount of level land which encourages cotton growing. But we should understand also the social and economic system which gives the area cheap



Inland waterways. Shipping tonnage registered at Duluth, Minnesota, ranks with that of the great ocean ports, yet it is some 2,500 miles from the open sea and serves the middle west United States.

Duluth Chamber of Commerce photograph

A rugged, mountainous country whose important transit position has resulted in commerce and industry. Switzerland. S. Celebonovic photograph

labour; the cultural background of the people which directs them to cotton rather than to rice; the transport facilities, and position with regard to world markets, which allows the surplus cotton to be moved to other areas. We would then know some of the characteristics of that place. It is no longer a name on the map. We also know several of the basic reasons why the cotton industry is located there.

In addition to knowing the characteristics of a place, its position and its relationship to other places are also important. We are aware that a place located in the central part of a continent will have difficulties in shipping its products into foreign trade. For example, few products of central Africa reach world markets. Compare the importance of the products of central North America in foreign trade, and yet they are located just as far from the sea as those of Africa. The answer lies not in the position alone of the place, but in its position with relation to navigable waterways. The high African plateau has waterfalls on its rivers, whereas central North America is served by the cheap and efficient Great Lakes and Mississippi systems. On the other hand, central South America also has an excellent navigable waterway in the Amazon River, but it drains a sparsely-settled, wet, tropical region which man has been unable to conquer. Central Asia has neither navigable waterways nor a climate wet enough for agriculture. Its impact upon foreign trade is slight.

This positional factor is important in determining the character of a country's foreign trade. For example, Chile is off the major world trade routes and will always have trouble selling her surplus products unless they are particularly valuable. Similarly, New Zealand's position "on the edge of the world" has forced her to market condensed, expensive products such as cheese and butter. Most of the countries in the Southern Hemisphere have similar problems because their long narrow shapes jut away from the major markets of the larger land masses of the Northern Hemisphere.



On the other hand, Switzerland is a rugged, mountainous country of generally poor physical environment, but occupying an important transit position between North Europe and Mediterranean Europe. This transit (and transitional) position has resulted in trade, commerce and industry. Position has been more important than environment. In a similar fashion, Denver, Colorado, has a strategic position between the mountainous, mining environment of the Rockies and the grassland, grazing economy of the Great Plains. The movement of products through this city is not classed as foreign trade—because of the great political area of the United States—but the basis of the trade is a difference in natural environment. Any city lying in the transition or contact zone between two types of natural environments is bound to be important in the interchange of products between those environments.



R.C.A.F. photograph

The ancient Precambrian rocks are rich in metallic minerals and contain the world's greatest gold mines, including those of South Africa, India, Canada and Brazil. The picture shows a stretch of the Precambrian Canadian Shield around Yellowknife, Northwest Territories.

Another of the fundamental reasons for foreign trade is the unequal distribution of natural resources. This distribution can usually be traced back to the peculiar natural environment of any "have" or "have not" nation. "Power politics" is often political manoeuvring to overcome, or take advantage of, some inequality in the distribution of natural resources.

The two basic products which move in foreign trade are mineral resources, and the products of the soil, such as food, textiles and beverages. The unequal distribution of mineral resources is due to the type of underlying bedrock. Such minerals as coal, petroleum, natural gas, and salt are the products of sedimentary rocks. In these rocks we do not expect to find the metallics such as gold, silver, lead, copper and iron. Thus, countries with large areas of flat-lying, or slightly folded, sedimentary rocks such as the Great Plains of North America, or the plains around the Persian Gulf, may have exportable surpluses of non-metallics for regions lacking that kind of rock. Similarly, the ancient volcanic rocks of our Canadian Shield, the Brazilian Highlands, or the Anabar Plateau of the Soviet Union are import-

ant sources of the metallics, which become the basis for heavy industry. Because these highland areas are rugged and less attractive to settlement, the valuable resources are usually moved to more favourable environments for manufacturing. Unfortunately, these volcanic rocks cannot be the source of fuel and power resources such as coal or petroleum. Economic factors then determine which mineral product will move to which for manufacturing. One of the reasons for foreign trade, therefore, is the distribution of varying types of bedrock. Mineral resources move from one type of rock to another.

One of the controlling factors in the movement of resources of the soil is climate. Food products move from one climatic zone to another. Tropical products such as rubber, mahogany, bananas or cacao are plentiful in that climate and the surplus is exported to other areas of less heat and rainfall. Wheat is produced in large amounts on the semi-arid grasslands of Canada, Australia and the Argentine. Since these climatic zones have a sparse population they export their surplus to more densely populated areas in wetter climates. The Arctic area exports its only

distinctive products—white fox pelts and seal skins—and since it can grow no vegetable products, it imports foods from all other climatic regions. Much world trade is based on this climatic differential.

At the University of British Columbia the economic geography course is begun by discussion of world distributions of products and economic activities by climatic zones. The logic of this arrangement permits the coverage of the whole world within a year. Once a student knows the products of the tropics or deserts, it become unnecessary to study the resources of each country, but simply to know where the various climates are located, and to know the advantages and limitations of that climate upon production. Countries with similar climates produce much the same products.

If companies in foreign trade knew more about the climate of other countries, it would assist them in opening up new markets. We sell in areas of dissimilar environment. In the United States several import and export firms employ economic geographers. Their job is to indicate the type of products desired



Tropical forest. The Sakai natives are carrying blow pipes. Northern Malaya. C.O.I. photograph

Mediterranean region—moderate rainfall in cool winter, hot dry summer. Trees are olives, pines, evergreen oaks. Citrus fruits and vines flourish where there is sufficient irrigation. Malta.

C.O.I. photograph





Grassland, low pasture and cultivation. Devonshire, England. C.O.I. photograph

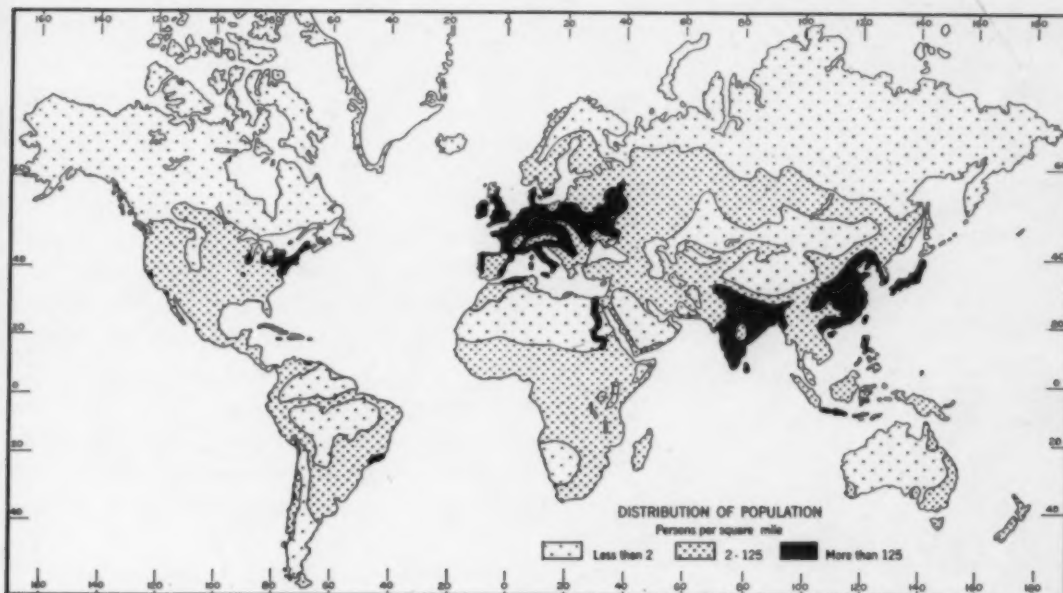
in certain environments and by different cultural levels of people.

For example, how much do Canadian traders know about Ethiopia? It is a friendly country with a fair density of population and an improving standard of living. It has a few valuable exports and thus is interested in imports. It has already shown a preference for Canadian educators and missionaries. What products do we have in our Canadian environment that might be of interest to Ethiopia? Being an inland people they are not great fish eaters, and being a mountainous country our fish would have to be packed differently for high altitudes. They are not particularly interested in our apples, since similar semi-tropical fruits are available locally. They have a Savanna grassland climate, and thus wood is scarce. Lumber is not used for rural houses, however, because grass thatch and mud are plentiful, but lumber is becoming increasingly common in the towns. Ethiopia also imports pulp and paper. Because Ethiopians lack forest resources, and we have an abundance, they provide a

potential market for our forest products. The differing environments of other countries can be analysed in the same way.

Another factor in foreign trade is the distribution of population. The most important trade routes are between centres of dense population. These densely populated areas are not able to feed themselves or produce sufficient raw materials for industry. They usually pay for these imports by exchanging manufactured products. The world's population is *not* distributed evenly over the globe. One-half of the world's population (one billion people) lives in Southeast Asia, another one-quarter lives in the small area of Europe. The third densely populated area is in northeastern U.S.A. Most of the world's population therefore lives in the Northern Hemisphere, and much of the world's trade crosses the North Atlantic Ocean.

Of equal importance for the future expansion of markets is the fact that half the world has a population density of less than two persons per square mile. It is sparsely populated. Since the world's rapidly growing



Canadian Geographical Journal map

Distribution of population in the world. The three areas of dense population are Southeast Asia, Europe, and Northeast America, in that order.

population is already overcrowding certain areas, there must be some strong reasons why half the world is little used or occupied. The reason for this sparse population lies in some unfavourable characteristics of the natural environment. The areas are either too hot or too cold, too wet or too dry, or too mountainous. For example, the sparsely populated, hot, Amazon Valley varies only two degrees from its 80 degree monthly average throughout the year. The cold Canadian Arctic has an average density of one Eskimo per 115 square miles of forbidding territory. The too-wet valleys of Upper Burma have an average of over 40 feet of rain falling within a few months. The dry Atacama des-

ert of Chile passes through several years in succession in which dew is the only form of precipitation. The mountainous plateau of Tibet—about three miles above sea-level—has little to offer the world, and receives in return only curiosity. Because of certain factors in the physical environment, population is sparse in all of these regions, and resources are few. Half the world plays a very small part in foreign trade.

These are some of the geographic factors in foreign trade. A sound knowledge of the world's geography will make better traders. It must be admitted that geography is not the only factor. Foreign trade principles are also formulated by policies of economics and

Prairie or steppe region — great ranching and cereal-growing areas. Western Canada.

Canadian Cattlemen's Association photograph





Desert region. Here the arid desert is broken by the palms of an oasis. Oman.

R. A. Codrai photograph

politics. Movements of products become artificial, however, when economics and politics change the pattern which Nature has already indicated. The advantage of knowing the geographic base is that it does not change, whereas economic policies and politics do.

During the war years geographers were continually annoyed with the jovial remark

"Oh, you're a geographer—you must be having a horrible time keeping the map straight!" That comment showed that the speaker thought of geography purely in terms of the political boundaries of countries and lists of capitals. The stock answer was that on the contrary, geography was one of the few things that had *not* changed. The mountains still remained where they were; the average climate had changed but little; the vegetation, soils and rocks were still supplying resources to man. Man's relationships with his environment were changing, as they always do, but at least one half of the study of geography—the physical environment—remained stable.

Physical geography is a permanent base upon which to place man. He may use that environment in different ways, but each adjustment can be traced. His economics, politics and technical inventions may change the current utilization of that environment but there is little change in the basic facts. The coniferous forests of Sweden and Finland are competitors of similar forests in Canada and the Soviet Union; grasslands of Wyoming compete with grazing areas of the Argentine Pampas or Western Australia; and sedi-

Savanna or tropical grassland. Seasonal rains are insufficient for forest growth. Pasture lands often become over-grazed. Nigeria.

C.O.I. photograph



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An upland plateau of central Peru, at an altitude of more than 10,000 feet. Temperature is cool because of the altitude; mountain-sides are eroded but alluvial soil in the plain is fertile.

From a water-colour by A. V. Coverley-Price

mentary rocks of Alberta or the Donetz Basin remain important sources of fuels. The geographer who knows the distribution of the factors of our natural environment, knows the sources of raw materials and potential markets.

Finally, foreign trade is dependent upon good-will among nations. That good-will is only possible through mutual understanding. One of the reasons for not understanding foreign people is that we do not know

the type of environment in which they live. A native of the tropics cannot be expected to think about or desire the same products as a resident of Montreal. A peasant on the vast sweep of the Russian plains does not have the same outlook on life as the resident of an enclosing, mountain environment. There would be less misunderstanding in this world if all peoples knew more geography, and there would be a sounder basis to foreign trade.

Barren rocks, ice and snow of Antarctica. There is no tundra region in the Southern Hemisphere. Graham Land.

C.O.I. photograph





Paper Cut-Outs

by HEDDA M. MORRISON

Apart from its utilitarian importance, paper is widely used in China to provide ornamental objects. One of the commonest and cheapest forms of these are cut-outs—gay little ornaments sometimes in plain white paper and sometimes in red and other colours.

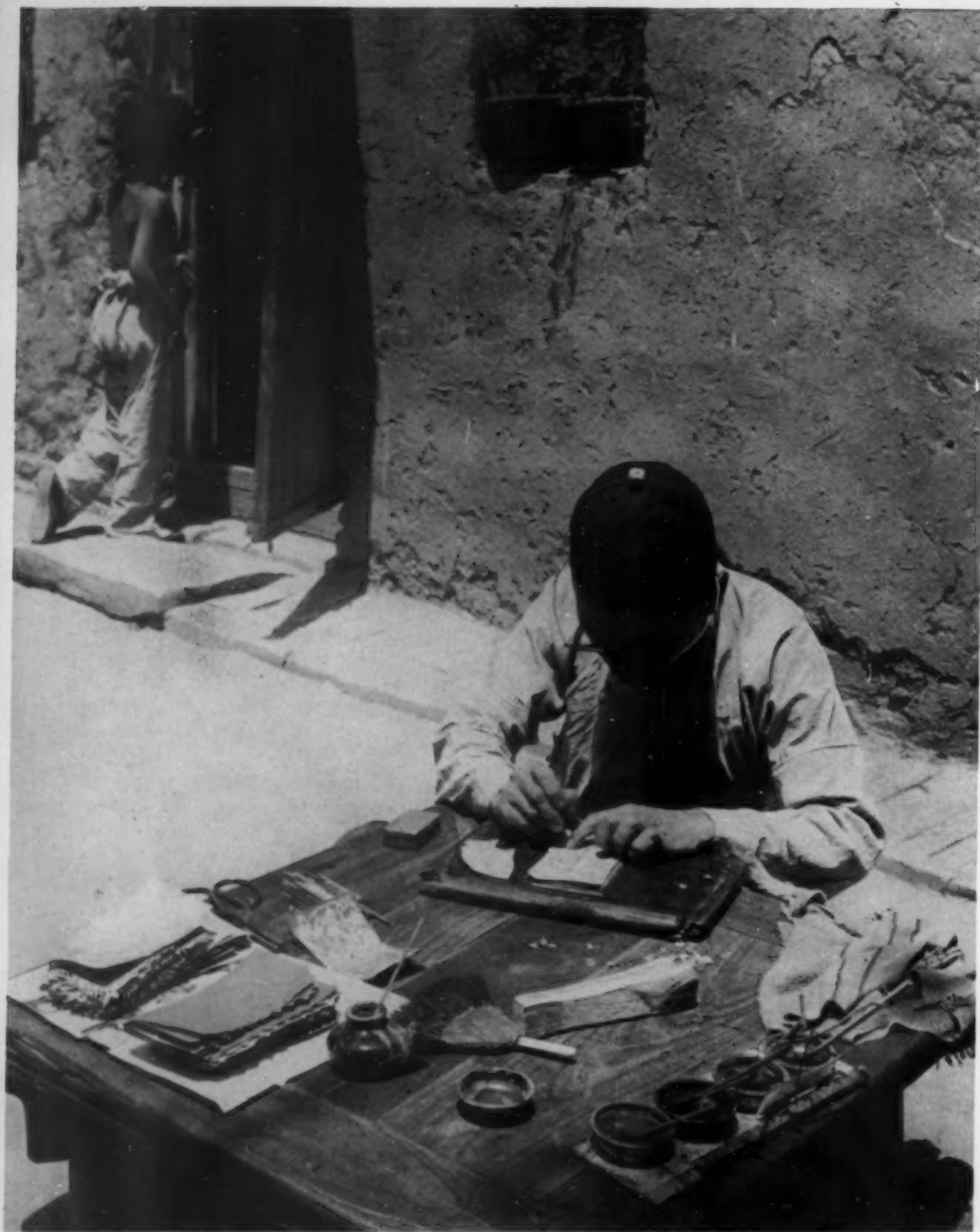
Above:—A simple Chinese window seen from the inside. Translucent rice paper is pasted over a painted wooden framework. Glass is rarely used for windows in Chinese houses, paper being a cheap and easily replaceable substitute and quite satisfactory in the dry climate of North China. On the window paper are pasted the cut-outs, a spray of flowers and two chickens holding scorpions by the tails.



Some of the subjects of cut-outs are historical or theatrical. Of the two shown, that on the left illustrates a Chinese story and shows a lover who has run away with his beloved and is carrying her over a stream. The lover's white mask shows that he is disguised. The one on the right shows a Chinese general with his sword raised and the traditional long tail feathers of the Reeve's pheasant in his headdress. His face is painted red following Chinese stage convention.



The cut-out maker who lives outside Peiping brings his wares to the city and displays them for sale in a market stall. On the lower panels are paper flowers. In addition to their use as a decoration for pasting on walls and windows, the cut-outs are used as designs for embroidering shoes and other articles.



The picture above shows the cut-out man at work in the little courtyard of his mud walled, grey tiled house in a village five miles east of Peiping. The house is as neat and tidy as the cut-outs and accommodates besides himself his wife and eight children. He is an old fashioned Chinese who takes great pride in his work, in which he is helped by his cheerful, healthy children.

Top right:—Preparing a simple cut-out from white paper. An old cut-out is placed on top of a number of sheets of paper and scot is brushed over the interstices leaving a black pattern which guides the worker in his task of excision.

Bottom right:—Painting brightly coloured cut-outs of Chinese theatrical performers. Flowers, dragons, butterflies, and various other symbols are similarly coloured. Eight cut-outs are coloured simultaneously for the rice paper is sufficiently porous to absorb the colours in this way.



Making Highways Safe

The Engineering Aspect

by J. D. MILLAR

Lift ye the stone or cleave the wood
To make a path more fair or flat—
Lo, it is black already with blood
Some Son of Martha spilled for that

FROM THE timeless story by the Empire's Poet comes the stanza that road-builders have cherished even as the British Tommy has enshrined the "Barrack Room Ballads". For Rudyard Kipling was also the engineer's poet whose pen championed the "Sons of Martha", doomed through all eternity to smooth the way for the more fortunate "Sons of Mary". Written at the beginning of the twentieth century when the motor car was in its infancy, the impact of these verses was truly prophetic. The motor vehicle played no part in the warfare of which Kipling wrote and it has only come to maturity in the last two world conflicts. Possibly no other invention has so changed our modern way of life as has the "horseless carriage". The latter part of the century may belong to aircraft and atomic power but the first five decades must be dedicated to automotive transport.

The motor vehicle and the road on which it must travel, have come a long way since the Victorian Era. Both were the object of ridicule in the interval between the Gay Nineties and the Roaring Twenties. The contribution of the inventors has been widely recognized in developing the machines themselves but has due credit been given to the men who built the path on which the automobile rolls? John Macadam contributed much to the automotive age, yet his name is only a vague memory in comparison with

The highway engineer — his is the job of building safety into the roadway over which the motor vehicles travel.

that of Henry Ford and his colleagues who put the world on wheels.

The problem of the early roadbuilders was one of getting traffic out of the mud. The current problem is to control and guide the mighty force of destruction which the internal combustion engine has unleashed. Like fire, the motor vehicle is a good servant but a bad master. The yearly accident toll on the highways of the North American continent raises a serious question as to whether the great benefits gained from cheap and convenient transportation have been purchased at too high a price. The number





Less than quarter of a century ago the roadbuilders' problem was to get the traffic out of the mud. It was a familiar sight to see a team of horses going to the rescue of a mired car. Town streets, in wet weather, were morasses of mud.





Some early methods used in the building

of lives sacrificed by carelessness on the highways is a sad commentary of our modern way of living. The bombs that fell on London, on Berlin, on Hiroshima, left records of dead and injured at which the whole civilized world was aghast. Yet today the continued slaughter of innocent victims is accepted complacently as part of our daily life. How can it be controlled?

It can be controlled by the same methods that the medical profession used to stamp out smallpox; but it can only be done with the wholehearted support of the public. Medical authorities fought a long and discouraging battle against public apathy towards vaccination to prevent smallpox. Highway authorities are fighting a similar battle to convince the driver that he has a grave responsibility to society every moment he is behind the wheel of a car.

Education and the enforcement of traffic laws can reduce the great majority of traffic accidents. Much could be written of the excellent work being done by safety organizations, the police, service clubs, the press and radio, in checking the rising death totals. The writer leaves to specialists in this field any discussion of the means of preventing accidents due to careless driving. There still remains, however, a substantial percentage of accidents caused by deficiencies of machines and roadway. The mechanical

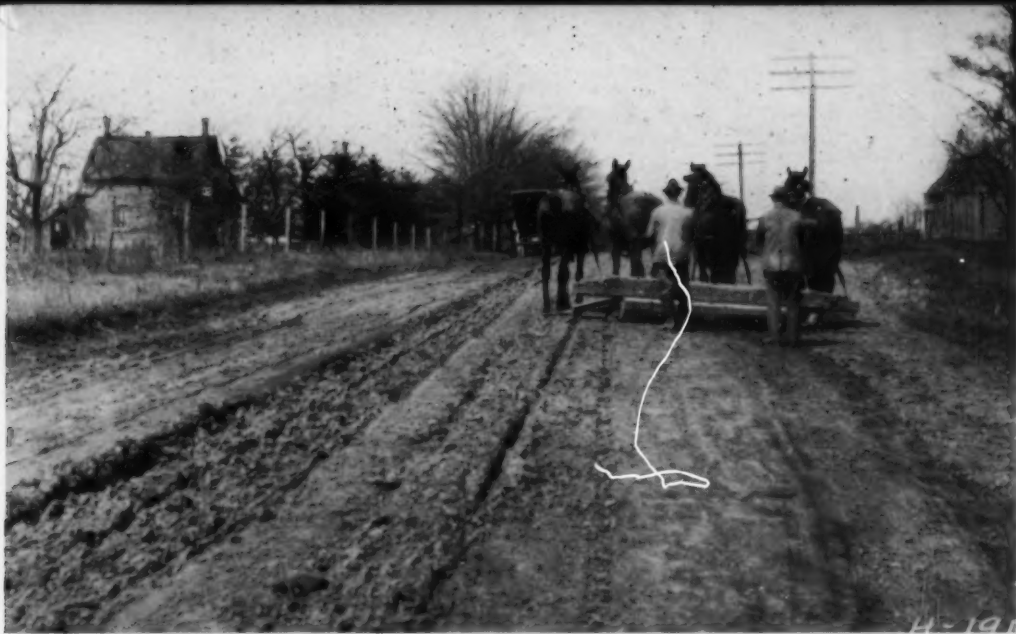
designers are doing their part — a direct challenge to the highway engineer to keep pace.

Looking over the record of fifty years of highway development in Canada, it will be found that the path of her roadbuilders has been a rocky one — both literally and figuratively.

Canada grew up with the motor car possibly more than any other nation. In Great Britain, prior to 1900, the railways had covered the greater part of the islands and the motor vehicle never overcame this early lead. Distances were short, wealth was concentrated, petroleum products had to be imported and the bicycle remained

Bridges were rickety





in the building and maintaining of roads.

the popular form of individual transportation. In the United States the automobile came faster on the heels of the Iron Horse. Widespread prosperity during and immediately following World War I, coupled with mass production, gave it a tremendous impetus in a nation populated by born travellers who had the leisure and money to go about. Out of the thickly settled and wealthy eastern States a network of roads fanned west and south as the range of the motor car increased. Wagons had crossed the continent before the railways and it was no great problem to improve these pioneer trails for use by the early cars. Whereas Great Britain has never reached the figure of one vehicle for every

thirty inhabitants, the United States for the past decade has had a ratio exceeding 1 to 5 and in some States it is nearly 1 to 3.

Canada had neither population, wealth nor existing roads when the motor car made its presence felt in World War I. Of all the provinces, only Ontario was in a position to match highway development with the rapid advances of the motor car. After a brief struggle with the electric railway lines, the highways gained public approval and, to copy a phrase which has become common in recent years, were given "top priority". Blessed with an abundance of stone and gravel for roadbuilding purposes, conveniently situated between the Atlantic and the mid-western States and with a large percentage of John Macadam's descendants to put theory into practice, Ontario made quick work of paving the trunk highways between 1918 and 1930.

This rapid progress had its advantages; it helped to make Ontario, and with it all Canada, an industrial competitor in the world's markets; it attracted a lucrative tourist trade in the prosperous twenties and it ended the centuries-old feud between the rural and the urban dwellers. But it brought serious trouble in its wake. The highways which were paved were laid out for the horse and buggy and not for a vehicle capable of speeds up to fifty miles per hour. The bridges

were rickety affairs.





In the early twenties came the first pavements. Smooth surfaces were provided for the motor vehicle but the alignment of the road remained in the horse-and-buggy era.

forming an integral part of these highways were not intended for loads of fifty tons which they were called on to bear. The main streets of many towns and villages became bottlenecks denying a driver the flexibility of operation which was one of the main reasons for the motor vehicle's existence. The highway system suffered from a surfeit of "too much and too soon".

Ontario is paying a heavy price for being progressive in highway as well as in hydro

development. It is costing many millions to replace highways and bridges which though structurally sound, are not adapted to present day needs. It is futile to argue who was to blame for extensive capital investments being made on roads where the right-of-way was narrow, crooked and a succession of steep hills. Everyone had a part in it and there were very few who urged that grade and alignment should be improved before paving was undertaken. The motorist



As the motor vehicle gained public approval, roads were built to link every town and city. As the community funnelled this expanding volume of traffic along their main streets, congestion, chaos and irritation developed by leaps and bounds.



Today, the motorist, who through taxes is paying the tune, is demanding a solution. The highway engineer is now permitted to use his ingenuity. Highway problems are viewed from the air. Aerial photography is the engineer's first approach to the problem.

was impatient of delay and would rather have fifty miles of good surface than ten miles of slow and costly grading.

Property owners were strongly opposed to highways leaving the surveyed road allowances. Cities and towns vied with one another to have the main highways pass through their boundaries and along the busiest streets. (What a Pandora's Box of trouble this insistence has opened!) The taxpayers — and it must be remembered that the motor vehicle only started to pay its own way with the introduction of the gasoline

tax in 1925 — were not at all inclined to contribute to what they termed as "speedways". Urban ratepayers were not happy at paying for roads outside their own municipalities and the rural townships took no pleasure in providing for their city cousins.

In the midst of this turmoil the road authorities of the day made many compromises. Any engineer who dared to suggest that highways should be designed for the vehicle that was to use them was promptly branded as a menace who would encourage wild and reckless speeds of twenty-five miles

The modern approach to congestion in towns and cities is to bypass them. Signs direct motorists to the business sections.





per hour. The pointed advice was to forget such nonsense and concentrate on getting a pavement into Centerville. What did it matter if Centerville was two miles off the direct line, had a main street only forty feet wide and lay in the bottom of a two hundred foot gully? Hardy indeed was the road superintendent who could tell his employers that they were wrong and he was right. The art of roadbuilding has been an open book since the days of the Caesars. It cannot be wrapped up in mystery behind the frosted glass of a law library or the white door of an operating room. Few question the advice of a lawyer or a surgeon but there are untold numbers who modestly admit that the science of constructing roads is their major hobby. Too many cooks spoiled the broth of the early road system.

Today the picture has changed to the other extreme. The motorist is now the taxpayer. Cities and towns which formerly bitterly opposed the suggestion that they should be by-passed are struggling with problems of congestion and demanding relief

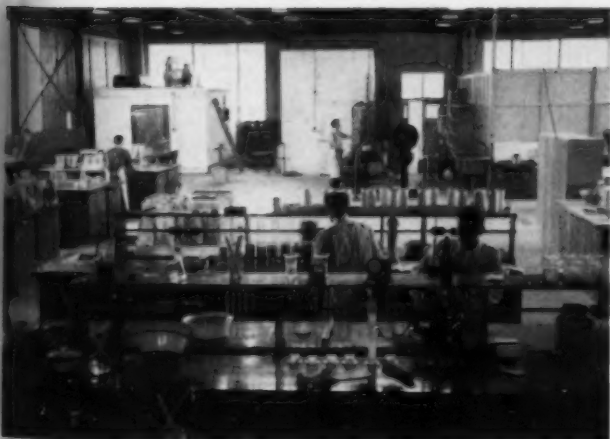
Examples of modern road building equipment now available



Before any roadway is undertaken, highway engineers prepare detailed plans and estimates

from the load of traffic from outside their borders. A large percentage of the rural land owners is now dependent on motor vehicle transportation and recognizes that the square grid system of land surveys is not suitable for highway lines which must follow the topography of the ground in the same manner as the railways. Over night the highway engineer finds himself freed of the inhibitions and restraints of half a century and free to plan what is needed. Unfortunately, many past decisions cannot be changed. There is an old saying that the alignment is the only permanent feature of a road. Pavements, structures, even the grades themselves, can be altered and improved, but a curve cannot be flattened except by abandoning an entire road section. Wider pavements and super-elevation or "banking" will help but in the majority of cases an entirely new road is necessary. This is not as expensive as it sounds because an additional road is usually needed in any event and the old one can continue to serve local needs when the pressure of through

t now available to construct the present day highways



Laboratory tests are made of soils and road building materials.



Service roads, parallel to the main highway, are useful to serve local traffic.



Bridges with a clear overall span eliminate the need for abutments.

traffic is removed. Over the years the subdividing of property and the concentration of buildings make the remodelling of an old highway a costly job. A new right-of-way can be purchased for a fraction of the cost of widening and straightening the old.

In the hands of the engineer also are instruments unknown fifty years ago. Transits and levels of amazing precision, aerial photography which changes months of backbreaking surveying to a few hours of flying time, a widespread network of accurate geodetic survey lines and bench marks, construction machines which can literally move mountains, all have given him the "tools to finish the job".

How is the problem being approached? Without hesitation the answer is by *relieving congestion*. A road may be winding and narrow but it will serve if only 1,000 vehicles per day are using it. Attempt to put 5,000 vehicles per day over this same highway, however, and the traffic accident rate will increase by the square of the numbers, as too many drivers attempt to use the space occupied by their neighbour. Much has been written of the "controlled access" highways but their purpose is very simple; to relieve congestion when a highway of the conventional type will not carry the load. They are exactly comparable to a railway. When all

the trains cannot be carried on a single line, it is necessary to build a double track so traffic can flow in both directions without interruption. Like a busy railway also it is essential to prevent trespass or interference from outside the right-of-way. As an example only a small percentage of the railways in Ontario is double track and by the same token only a small percentage of the highways need to be of the controlled access type. It is estimated that eighty per cent of the total traffic of the province is carried by the King's Highways,* which constitutes slightly more than ten per cent of the total rural road mileage. Of this ten per cent (some 7,600 miles), less than one per cent of the total, or 760 miles, is estimated to have daily traffic volumes in excess of 5,000 vehicles in the immediate future.

The controlled access highway has safety features which, if properly used, can eliminate accidents due to traffic congestion. The primary essential is the absence of any cross traffic except at clover-leaf intersections where provision is made for safe entry to and exit from the main traffic flow.

Between these points of entry, or "interchanges", the right-of-way is solidly fenced off from outside traffic. All cross roads are taken over or under the main line by means of bridges or subways. The lanes of opposing

*See King's Highway—R. M. Smith, Canadian Geographical Journal, April 1938



space eliminate the mental hazards presented by abutments.



Grade separations, such as cloverleafs, allow for free flow of traffic at intersections.

traffic are separated (current practice in Ontario calls for a minimum thirty-foot dividing boulevard), all bridges over streams are of twin construction and all railway crossings except sidings are eliminated by subway or overhead structures. Decelerating and accelerating lanes provide a safe and protected means of leaving and entering the main traffic flow. Highways of this type have recorded exceptionally low accident rates. On a four mile section of the Queen Elizabeth Way* immediately west of the City of Toronto only three fatal accidents have occurred in a ten year period. Two of these were pedestrian and the other a straight case of careless driving. This record, in spite of traffic volumes reaching more than 20,000 vehicles per day in peak periods, is all the more remarkable when it is considered that a large percentage of vehicles are truck transports travelling at night.

Where traffic volumes do not require highways of the divided type but where new trunk routes are being constructed over a considerable distance, there are many aids to safe driving which can be incorporated into their construction. Wide right-of-way, flat curves and easy gradients are the basic requirements. Under Canadian climatic conditions a wide road allowance is essential for snow removal purposes alone. Traffic cannot

be kept moving in the winter months unless the ploughs have a place to throw the snow.

Rural highways have to be opened fast, and one plough frequently has to care for

Where traffic volumes reach an established density the controlled-access highway, with the opposing lines of traffic separated, provides greater safety.



*See "The Queen Elizabeth Way" by R M. Smith, Canadian Geographical Journal, April 1940.



Now that motor travel is a year-round occupation, the highways must be kept safe for travel during the winter. Snow-blowers keep snowbanks pushed well back from the highway.

In Ontario, many snowploughs are in direct communication with the maintenance engineer via a radio-telephone hook-up.



The rapidly changing weather in winter makes it even more difficult to keep the highways clear.

Ice makes the road surfaces more dangerous than snow. Chemicals used to dissolve ice are delivered in boat-load quantities.



Sanding slippery surfaces.



In Ontario safe driving surfaces are provided in the winter.





Gently sloping shoulders help to prevent damage and injury should the motor vehicle be forced off the highway.

New bridges are being built which conform to the standards laid down for the highway.



Top to bottom:—

Direction and warning signs, and white lines are major safety features of the highway. The speed limit sign ranks first amongst these precautions. In Ontario, signs and white lines must be and are visible at night.

fifty or more miles of road. Wide road allowance permits wide pavement, wide shoulders and shallow ditches set back at the fence line where they belong. A highway width of sixty-six feet of the early surveyor's chain is a thing of the past; one hundred feet is now a common minimum with wider sections where required. When first established in Ontario in 1917, the standard pavement width of twenty feet was regarded with horror as a reckless extravagance. It has served honourably and well for more than thirty years but is now giving way to a standard twenty-two feet on the single lane roads. Shoulders of five feet with a sharp drop to deep ditches are being replaced with gently rounding shoulders of ten feet or more. Bridges which formerly were only slightly wider than the adjacent pavement are being built to the full shoulder width where possible.



Maintaining a highway after its construction is possibly even more important from a safety standpoint. The best of paved surfaces are a hazard if they are allowed to deteriorate. A fortune awaits the inventor who can come forward with a paving material which will be non-skid in wet weather but not so rough that it will cause undue tire wear or excessive vibration in the vehicle using it. The ideal pavement is one having an extremely smooth finish, yet all who have driven in rain or sleet dread its lack of traction under such conditions. For the present at least, it is evident that a slightly rough textured surface must be used. Tires can be replaced; human lives can not.

An increasing number of traffic aids are being introduced for the motorists' protection. Perhaps the most outstanding has been the zone marker painted on the pavement. Many a driver owes his life and that of his passengers to the friendly white line which has kept him on his course in fog and darkness. The symbol sign, indicating at a glance the conditions on the road ahead, the guide rail, reflectorizing paint, snow ploughing and sanding operations, all have held down the rising accident toll as more and more cars pour onto the highways and urban streets. Even the much maligned traffic light has played an important part. Ontario takes considerable pride in the traffic lights which guard the main highway intersections. They feature a twelve inch red lens which

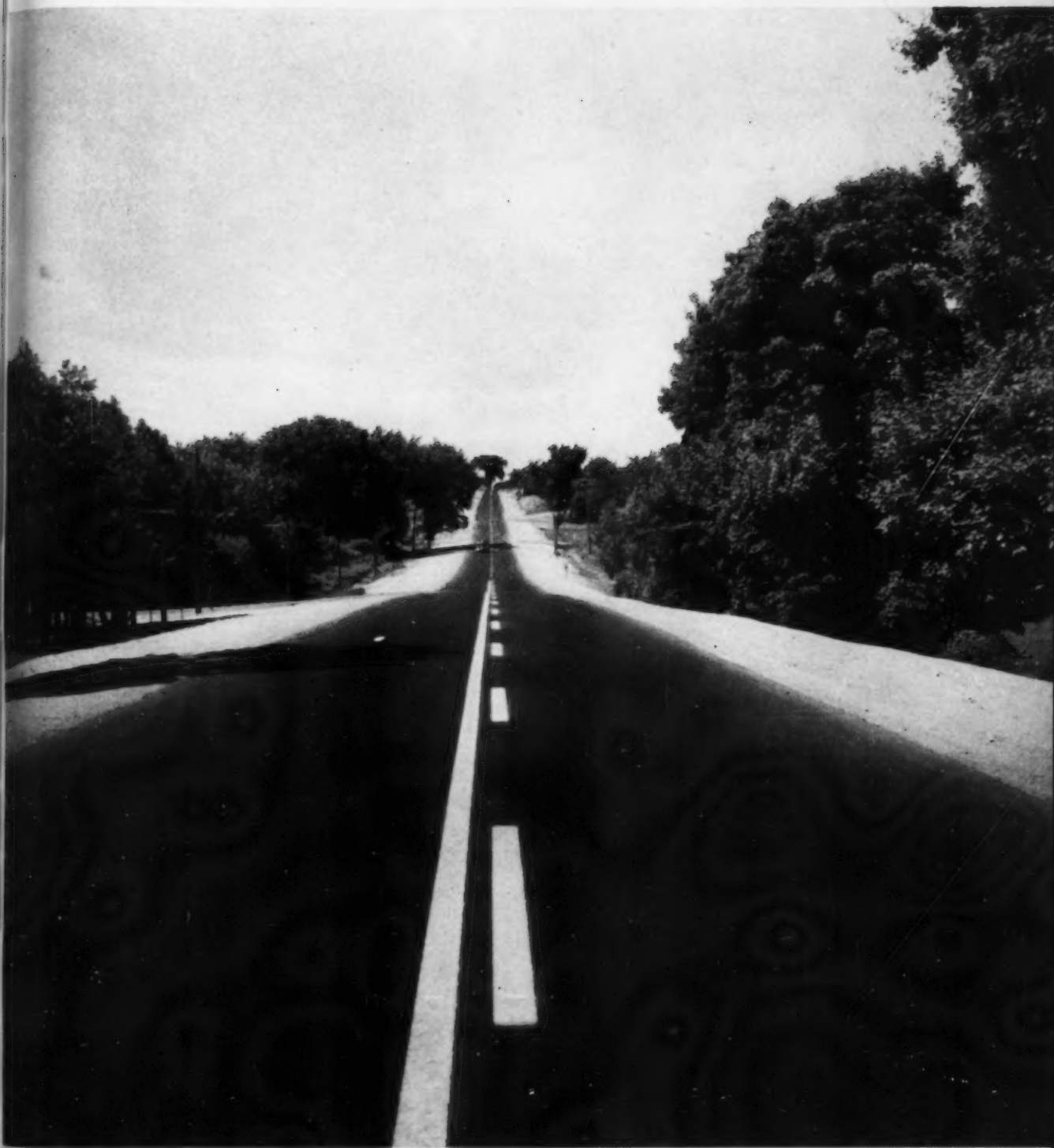
for many years has been the only one of its type in the world. Strict control of advertising signs which interfere with a driver's main duty of keeping his eye on the road, have been another highlight of Ontario practice. Even the picnic table and roadside park* play their part by giving the motorist rest and relaxation from the strain of driving.

Well maintained highways are like a trim ship. They give the impression of neatness and alertness and the driver reacts accordingly. Efficiency experts have demonstrated that accident rates in industrial operations are lower when plant and machinery are in top running order and they tend to increase under adverse working conditions. A relaxed driver is a safe driver. A tired and exasperated driver can be a hazard to everyone on the road. Remove the cause of his fatigue by attractive, tree bordered, smooth and gently curving roadway and you reduce the possibility of another grim figure being added to the accident statistics.

Many graduates of famous colleges have followed careers devoted to assisting their fellow men. Doctors have given their lives in finding the cure to many dread diseases. The most insidious disease of modern times is that which strikes down its victims without warning in the grinding crash of an automobile accident. To the engineering profession and to all who deal with highway safety matters it is a challenge and a duty to find the cure.

*See "Ontario's Summer Estates" by E. H. Murray, Canadian Geographical Journal, February 1945





The highway of today as designed and constructed by the highway engineer — a paved surface marked by safety lines, wide shoulders and no advertising signs.



Holy Wells of the British Isles

by W. H. OWENS

Innumerable legends and traditions are woven about the holy wells and healing springs which are to be found in so many parts of the British Isles. One of the most interesting links with the remote past, they have been continuously associated with supernatural belief since pagan times; even today, a few of them are regularly visited by devout pilgrims who attribute divine origin to the healing powers of their waters.

That there are still about five hundred holy wells in Britain shows what an important part they played in the life of bygone centuries. While they are chiefly found in Cornwall, Wales and Ireland, where the ancient megalithic cults were most firmly established, quite a number belong to the

large towns. Holywell Street, in the City of London, recalls a sacred spring that was venerated by the Canterbury pilgrims, and St. Bride's Well was famous until comparatively recent times. The unfailing hot spring at Bath, over which the Romans built their wonderful bathing establishment, was originally a place of pilgrimage and worship.

Among the most celebrated of these ancient wells is the Chalice Well, or Blood Spring, in the grounds of Glastonbury Abbey. During the Middle Ages it was regarded as the most hallowed site in the British Isles and attracted thousands of religious pilgrims from almost every corner of Europe. For according to Christian legend,

At top:—The baptistry, restored with the original stones in 1776, at St. Cleer in Cornwall. Water from the well is reputed to cure madness.

Haunted Dupath Well at Callington, Cornwall, which has never been known to run dry. The baptistery is believed to date from the ninth century.

the well flowed from the very spot where St. Joseph of Arimathea buried the Holy Grail, or Cup of Blessing, used by Christ at the Last Supper.

The waters of the Chalice Well have always had a slightly reddish colour due to a peculiar kind of fungus that grows deep down inside it. This, however, added much to its fame and mystery in olden days because the pilgrims believed that the waters were tinged with the Holy Blood. Many marvellous faith cures are said to have been wrought there until the dissolution of Glastonbury Abbey by Henry VIII.

St. Winefride's Well at Holywell, on the coast of North Wales, is remarkable in that it has been visited by pilgrims continuously for more than a thousand years. Known throughout the centuries as "The Lourdes of Wales", this is still the most famous centre of healing in the land. Every summer processions wend their way to this abundant mineral spring and services are held in the beautiful old chapel that is built over it. In this chapel one may see sticks and crutches left by grateful pilgrims of bygone years, while even in very recent times some amazing cases of healing have been reported.

The strange legend concerning the origin of this well tells how the young St. Winefride, vowed to a life of chastity, was ruthlessly beheaded by her lover, Prince Caradoc, because she refused to marry him. Where the head struck the ground a spring of crystal-clear water gushed forth and has flowed generously ever since. The murdered saint



was, of course, miraculously restored to life and became an abbess, while the prince perished.

No county of Britain can boast so many ancient wells as Cornwall. Many of them are enclosed by little stone oratories which were often the dwelling places of the early Christian saints whose names they bear. The Well of St. Guron in the churchyard at Bodmin was the site of a hermitage as early as the fifth century A.D.; a remarkable mediaeval carving above the entrance depicts the saint praying under a tree outside his oratory. The original Saxon baptistery still shelters the Dupath Well at Callington and a little holy stream in which many pilgrims and converts to the Christian faith were baptized.

These Cornish wells, invested with all kinds of strange superstitions, were once famous for healing particular afflictions of the mind as well as the body. Those at Madron, near Land's End and St. Cleer, on Bodmin Moor had the reputation for curing mild cases of insanity; another in the Land's End district healed sufferers of palsy; and one outside the town of Liskeard contained charm stones which were believed to assist in difficult cases of childbirth.

The Chalice Well at Glastonbury, Somerset. Tradition has it that the Holy Grail is hidden in a rocky chamber at the bottom of the well.





An assortment of articles suspended in the waters of the Dropping Well at Knaresborough, Yorkshire. They will be petrified in from 3 to 18 months.

But the most famous well in Cornwall is that of St. Keyne which has more secular associations than all the rest. It became widely known through Robert Southey's popular ballad, "The Well of St. Keyne", which the poet based on an ancient Cornish legend. According to this, the man or wife who drinks first at the spring immediately after marriage should have mastery over the other throughout their wedded life. In the last verse of his poem, Southey tells of the unhappy bridegroom who rushed to the well straight from the wedding ceremony only to discover, on his return, that his lady had carried a bottle of the magic water into church beforehand.

Probably the oldest British well of which there is record is that hidden in the vast crypt of Winchester Cathedral. Originally venerated as a sacred spring by the early Druids, and undoubtedly used by the Romans as well, it is an interesting example of how a site of pagan worship was subsequently chosen as the place for a great Christian church.

The primitive cult of water worship was very widely practised in Britain for more than a thousand years after the coming of Christianity. Attempts were made to suppress

it by various Saxon and Norman kings, but met with very little success. Until the fifteenth century there were regular spring-time festivals of rejoicing centred around the holy wells of the countryside, the rites including the performances of local folk plays and morris-dancing. The seasonable 'dressing' of wells and sacred springs was one of many pagan celebrations which was adapted and used by the early Christian church.

Well-dressing actually survives to this day at Tissington, in the Derbyshire Peak district, a village which has no fewer than five holy wells. Every year, on Holy Thursday, a beautifully decorated wooden screen is set up behind each of the wells, and the local choir and clergy conduct a short religious service before each. The custom was revived about three hundred years ago as a form of thanksgiving for deliverance from the Plague which took serious toll of life in other Derbyshire villages at that time, and from which the purity of its wells alone saved Tissington.

The art of dressing the wells has been handed down from father to son through each generation. The wooden screens are covered with a layer of moist clay which serves as the base for artistic mosaic pictures worked in flower petals, leaves, berries, mosses and grains of rice. The Biblical subjects chosen are scenes from the life of Christ or the prophets of the Old Testament.

In the remote west of Ireland, where there are a great number of holy wells regularly visited by pilgrims, it is still common practice to leave votive offerings of stones and pebbles, flowers, coins, bent pins or shreds of linen and clothing. Such gifts are supposed, in some mysterious way, to ensure the continuance of the life-giving powers of the waters. A lonely well at Glencolumbkille, among the wild hills of County Donegal, is almost hidden from sight by an enormous mound of rough stones brought together by the faithful over a period of hundreds of years. In Cornwall, too, one still comes across 'Rag Wells', so-called because pilgrims left behind fragments of cloth cut from their

The stonework that marks the remains of St. Ethelbert's Well at a 700-year-old almshouse near Castle Green in Hereford.

garments as a token of gratitude to the healing spirit of the waters.

Besides the wells with sacred associations, there are others around the British countryside believed to be invested with magical powers. The famous Wishing Well of Upwey, in Dorset, is visited annually by thousands of tourists who perform the traditional rite of throwing a cupful of water over the left shoulder after drinking. This is supposed to bring about the fulfilment of any human desire.

The Ebbing and Flowing Well at Giggleswick, in Yorkshire, is one of the most interesting natural curiosities in the north of England. From time to time, in wet and dry seasons, the waters rise or fall as much as ten inches, a phenomenon that has even baffled geologists. Local tradition, however, offers a fanciful explanation. Long, long ago, says the story, a satyr once frightened a beautiful nymph at this spot. The nymph prayed to the gods to be changed into a spring of water to avoid capture. Her wish was immediately granted, and the ebbing and flowing action is supposed to be her heavy breathing at the time of transformation.

In the same county is the so-called Dropping Well at Knaresborough—the only



specimen of a petrifying well in the British Isles. People once believed it had magical powers because the waters are so highly charged with limestone that they turn any object in their path into stone within a matter of months. Close to the well is the ancient rock hermitage once occupied by a celebrated Christian warrior named St. Robert, who lived in the ninth century. Legend has it that the saint wrought faith cures among his followers, using the waters of the Dropping Well.

Upwey Wishing Well, near Weymouth, Dorset. After taking a sip the remains of the cupful of water must be thrown over the left shoulder to make the wish come true.





THE CANADIAN GEOGRAPHICAL SOCIETY

ANNUAL GENERAL MEETING

The twenty-first Annual General Meeting of The Canadian Geographical Society was held on February 24, 1950, in the Lecture Hall, National Museum of Canada, Ottawa. The President, Mr. Charles G. Cowan, presided and the meeting was honoured by the presence of Her Excellency, the Viscountess Alexander of Tunis.

Mr. Cowan introduced the speaker of the evening, General the Hon. A. G. L. McNaughton, with a brief reference to the General's distinguished career in the fields of research, the army, and international relations. He expressed the pleasure of the Society at the return to Ottawa, after a long absence, of General and Mrs. McNaughton.

General McNaughton, a Vice-President of the Society, then addressed the meeting on the subject of "North American Defence". The General's experience as a military leader, as Canada's delegate to the United Nations and as a member of the Atomic Energy Commission gave him a deep insight into the problems involved in the defence of this continent. The speaker pointed out that insular defence is no longer enough for security in an age of aircraft of supersonic speed, high explosive guided missiles, atomic weapons, bacteriological and chemical warfare. Reliance must be placed on highly trained, well integrated forces of great mobility operating with the highest quality weapons and equipment devised by science and engineering. He warned against the dangers of unilateral disarmament, which had been demonstrated between the two world wars, and stressed the importance of planning in North American defence. The audience followed attentively General McNaughton's authoritative dissertation.

This part of the proceedings was broadcast over an Ottawa radio station.

On behalf of the Society, Professor J. T. Wilson thanked General McNaughton for his most interesting address on a subject about which no one was better qualified to speak.

The President then opened the business proceedings of the Annual Meeting. Minutes of the twentieth Annual General Meeting were approved and the President gave a short report on Society activities during the past year. "From its humble beginnings in 1929, the Society has enjoyed a steady growth to this, its 'coming of age' year," he said. "We now find an almost universal acceptance of its publications." These publications were the *Canadian Geographical Journal*, the booklets on the *Geographical Aspects of the Provinces of Canada*, and reprints of articles. During 1949, fifty-four articles were published in the *Journal*; they dealt with nine of the provinces, as well as Dominion-wide subjects, and thirteen touched on foreign countries. Of the articles, nineteen were on the physical, twelve on the economic, thirteen on the human, aspects of geography, and ten were historical in content. Sixteen reprints were published, amounting to nearly 370,000 booklets, which had wide distribution. The steady demand for the *Geographical Aspects* booklets necessitated a second printing in 1949, a tenth booklet on Newfoundland being added to the set when that country became part of Canada. Sets of the booklets had been sent to libraries in many parts of the world as well as to United Nations organizations.

In the conduct of Society business, the Executive-Secretary travelled more than 14,000 miles, mainly in eastern Canada, including Newfoundland, and in the eastern United States. Many contacts were made with a view to extending the use of the Society publications.

Two scholarships were again awarded to students at McGill University Geography Summer School. Membership at the end of 1949 showed a slight increase over 1948, despite the necessity of increasing the fees at the beginning of 1949. The finances of the Society were in excellent condition with reasonable surpluses both on general account and in the geographical research fund.

The report of the Honorary Treasurer was approved and ten Directors were elected for a three-year term of office, including two new Directors, Sir Albert Walsh of Newfoundland and Dr. Benoit Brouillette of Montreal. Two new Directors were also elected to fill vacancies for two-year terms of office, Major-General Howard Kennedy and Dr. J. W. Watson, of Ottawa.

The proceedings concluded with a vote of thanks to the press for continued support of the Society and help in making its aims known.

Immediately following the General Meeting a meeting of the Board of Directors was held. The President and Officers of the Society were re-elected for 1950 and the Executive Committee was re-appointed. Auditors were appointed. The Editorial Committee was re-appointed and augmented by the addition of six new members, Dr. Benoit Brouillette of Montreal, Mr. J. W. Churchman of Regina, Dr. G. A. Frecker of St. John's, Newfoundland, and Mr. B. T. Richardson, Mr. E. B. Rogers and Dr. J. W. Watson of Ottawa. (For full list of Directors and Editorial Committee see Page II.)

EDITOR'S NOTE-BOOK

Adelaide Leitch claims Toronto as her "home town" for she grew up there and graduated from the University of Toronto. She spent the next five years as a newspaper reporter, half the time on the *Midland Free Press Herald*, the remainder on the city staff of the *Windsor Daily Star*. Miss Leitch likes to travel and has made a good start with trips to the Yukon and Alaska, to Newfoundland before confederation, and more recently to Labrador and the islands of St. Pierre and Miquelon. She is now a free-lance writer and she illustrates her articles with her own photographs, having developed a hobby into part of her business. She has contributed to many well known Canadian periodicals.

* * *

J. Lewis Robinson has written many articles for the *Journal*, his particular field of interest having been in the Canadian Arctic. After graduating from the University of Western Ontario and Syracuse University, Dr. Robinson did post-graduate work in geography at Clark University, where he lectured in cartography and meteorology. He was recalled by the Canadian Government in 1943 to take over geographical work for the Bureau of Northwest Territories and Yukon Affairs of the Department of Mines and Resources. Dr. Robinson is now Associate Professor in charge of geography courses in the Department of Geology and Geography at the University of British Columbia.

* * *

Hedda Morrison was born in Germany, where she took up the study of photography. She went to China in 1933 as a professional photographer and lived in that country for many years. In 1946 she married an Englishman in China, later going to England. Subsequently Mrs. Morrison and her husband returned to the East and for the past two years they have lived in Sarawak.

* * *

John David Millar was born near Brockville, Ontario. He was educated at Queen's University and on graduation in 1930, he joined the staff of the Department of Highways as an instrument-man. Appointed as

District Engineer of Municipal Roads at Port Hope, he was later transferred, in a similar capacity, to Cornwall in 1935 and to London in 1937. In 1939, he was made Assistant Engineer at Toronto and when the Department of Northern Development and the Department of Highways were amalgamated, he was sent on an inspection survey to study the highway problems of Ontario. In 1943, he succeeded Mr. R. M. Smith as Deputy Minister of Highways for Ontario. Mr. Millar is now completing a five year highway development scheme from plans made during the war years.

* * *

W. H. Owens, a contributor from England, has devoted himself to writing since leaving school, except for a period of three years when he was book editor for a large firm of British publishers in London. Mr. Owens has specialized as a writer of first-hand accounts of the British scene, industries, crafts and customs.

* * *

ERRATUM

In the February issue, page 78, line 15, *Picea glauca* should read *Picea mariana*.

CANADIAN GEOGRAPHICAL JOURNAL
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- 1930—May.
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 1934—January.
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 1937—February, March, July, August, October.
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 1939—March, May, June, August, September, November, December.
 1940—January, April, July, August.
 1941—January, February, March, April, May, June, August, October, November.
 1942—February, March, August, October.
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 1945—September, October.
 1947—January, February, March, July, August.
 1948—February.

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AMONGST THE NEW BOOKS

This Is Newfoundland

Edited by Ewart Young

(Ryerson Press, Toronto, \$4.00)

Strangely enough, Newfoundland was Britain's oldest colony, yet probably was—and still is—the least-known member of the Commonwealth. Here is a timely volume on this Atlantic isle, where, in the words of E. J. Pratt, "There overhead a mile, planes bank like gulls; like curlews scream the jets," almost unnoticed by the fisher-folk.

If it be true that one picture can tell many stories, then here are many stories of St. John's, the capital, on its perfectly land-locked harbour; Corner Brook, where the Bowater mill spews out miles of paper weekly; Grand Falls, site of the first pulp and paper mill on the island; and the "Crossroads of the World" lying on a plateau near Gander Lake.

For most Newfoundlanders the sea rather than the air remains the great highway and their verdict can be appreciated when one studies these pictures of rugged, tree-clad hills straggling down to the water, where resourceful inhabitants have erected settlements, there to build their own boats and to sail them where they want to go, off to the Banks in search of cod, or in coastal trade.

Here and there are farms, but, in most places, farming is fraught with great and many difficulties; and so it is not surprising that the island is not self-supporting agriculturally and must draw most of its farm produce from the neighbourly Prince Edward Island. All this and much more is shown vividly in fifty photographs by Cyril Marshall.

Brian Cahill then takes up the story of Newfoundland's journey from First Colony to Tenth Province of Canada; his final paragraphs describing the argument about "Confederation" and "Responsible Government" are sane and well-balanced, making them of value to the outsider as yet uncertain as to what all the recent discussion was about.

Twenty portraits by Karsh, each with a biographical sketch by Premier J. R. Smallwood, show some of Newfoundland's leading sons and stalwarts. But the greatest charm of the entire volume, for me, are the poems "Newfoundland Sailors," and "Newfoundland," by E. J. Pratt, C.M.G., at the opening of the book. With an economy of words and a world of lively imagery, he brings the island and its people to life. And thus,

the story is told

Of human veins and pulses,
Of eternal pathways of fire,
Of dreams that survive the night,
Of doors held ajar in storms.

This is a book worthy of inclusion in every Anglo-Canadian library; a picture-book of much merit.

H. C.

* * *

The Making of a Canadian

by J. F. B. Livesay

Edited by Florence Randal Livesay

(Ryerson Press, Toronto, \$2.75)

Some few men seem to be gifted with an undefinable charm and character that so impresses itself on friends and associates that even the most fragmentary of their writings seem to be a projection of themselves. So it must have been with Mr. Livesay, and the present volume, comprised for the most part of notes for a book that he did not live to publish, will be welcomed both by the many who knew him and those who made his acquaintance only through his delightful *Peggy's Cove*, which was reviewed in these columns some years ago. These rare books are the flowering of a mature and sensitive mind and add to Canadian letters something brought to, and fused with, this new country from an older and more settled society. We can only regret that Mr. Livesay was not spared to create this last book.

P.E.P.

* * *

Down in Nova Scotia

by Clara Dennis

(Ryerson Press, Toronto, \$3.00)

ORCHARDS and the sea, and ships sailing up Annapolis Basin after a voyage to England form the childhood stories of many descendants of Nova Scotians. Those who have sought out this earthly paradise of their dreams share with the author the exultation expressed in her sub-title, "My own, my native land". To them and to countless others this book will be treasure trove.

They will look eagerly in these fascinating chapters for descriptions of their ancestral homes, traces of names recurring in their family history. To these personal thrills are added a delightfully detailed historical panorama, unrolled as the author travels over the province from Halifax to Windsor, Grand Pré and Granville, Annapolis, Digby, Yarmouth, Shelburne and many another town and village, beautiful for situation on coasts or tidal rivers, and each with its legends and memorials of by-gone days enriching the vigorous life of the present.

F. E. FORSEY

(Continued on page XIII)



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This is a useful index for reference to all articles—to be looked up in your own back numbers or in the school or library sets.

(Continued from page XI)

We Live in the Arctic

by Constance and Harmon Helmericks
(McClelland & Stewart, Toronto, \$4.00)

This book, a sequel to *We Live in Alaska* by the same authors, will make an immediate appeal to those who like to read of the joys of the simple life in the great outdoors. To people who have lived in the Arctic, because they must and not because they like to, it will not be quite so attractive perhaps. People who know, will be constantly irritated by the things the young adventurers do which they should not do, such as their venturing into an uninhabited area, far from any other people, for the winter with only enough food for a couple of weeks or little more.

Reference is made to the valuable scientific results attained, based principally on an enforced and somewhat scanty meat diet. The value of these observations

is a little obscure. When we compare the results obtained by these authors with those recorded by the Stanwell-Fletchers in *Driftwood Valley*, there is little difficulty in understanding that valuable scientific results can not be expected without thorough preliminary training.

DOUGLAS LEECHMAN

* * *

Ant Hill Odyssey

by William M. Mann

(McClelland & Stewart, Toronto, \$4.00)

Both the title and the jacket of this book suggest that it is preoccupied with ants, with the result that many readers who might well enjoy it will pass it over unexamined. Actually, though ants do take up a fair share of the space in it, the book is one which concerns itself with the life of a skilled naturalist who has ranged far and wide in the pursuit of his science. Dr. Mann is the Director of the National Zoological Gardens in Washington, D.C., and has been an active collector since the age of four. His first aquarium was installed in an abandoned outhouse near his home in Montana where two convenient circular apertures just fitted disused placer miners' gold pans. His present laboratories are considerably more elaborate, but surely no less absorbing, and the observations no less carefully noted. South America, the Near East, the Far East, all are spoken of and all are made fascinating by the author of a thoroughly interesting book.

DOUGLAS LEECHMAN

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